

# **DART BOARD HAVING DEVICE FOR GENERATING LINES**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a dart board assembly, and  
5 more particularly to a dart board assembly having a device for  
generating reference lines or toe lines and for avoiding the users  
from drafting the reference lines or the toe lines manually.

### **2. Description of the Prior Art**

Various kinds of typical dart boards have been developed and  
10 comprise a number of darts areas or dart segments to be hit by darts.  
In addition, various kinds of dart games have been developed for  
being played by one or more players.

For almost all of the dart games, one or more reference lines or  
toe lines are required to be drafted in front of the dart boards, and  
15 the players should stand behind the reference lines or the toe lines to  
play the dart games.

The distance between the reference line or the toe line and the  
dart boards is normally ranged from about seven (7) to nine (9) feet.  
For example, the distance between the toe line and the dart boards is  
20 about seven (7) feet and six (6) inches in Great British, and is about  
seven (7) feet and nine and a quarter (9 and 1/4) inches in the  
United States.

However, till today, the toe lines are still drafted in front of the  
dart boards by the players manually, with such as chalk, pen, or the  
25 like. Before playing the dart games, the players may have to  
measure the distance between the toe line and the dart boards, and  
then may have to draft the toe lines. The toe lines drafted by chalk,

pen, or the like normally may not be last for long time.

The players may chose some of the lines or objects, that have been previously formed or provided on the ground or the like, as the reference lines or the toe lines. However, it will be difficult to find a support surface or a support wall to support the dart boards, and to have the support surface or the support wall to be exactly located in the required distance away from the selected lines or objects.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional dart boards.

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### **SUMMARY OF THE INVENTION**

The primary objective of the present invention is to provide a dart board assembly including a device for generating reference lines or toe lines and for avoiding the users from drafting the reference lines or the toe lines manually.

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In accordance with one aspect of the invention, there is provided a dart board assembly comprising a dart board, and one or more reference line generating devices attached to the dart board, to generate at least one toe line for the dart board, and to avoid the users or the players from drafting the toe lines manually, and from drafting the toe lines every time when the players are going to play the dart games.

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The reference line generating device includes a laser or light generating device for generating the toe line, and/or includes a housing to receive the light generating device, and/or includes a circuit board received in the housing, and the light generating device is attached to the circuit board.

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The housing includes a casing having a bore formed therein to

receive the light generating device. The reference line generating device includes a lens received in the casing and disposed in front of the light generating device. The casing includes a passage formed therein and communicating with the bore thereof to receive the lens  
5 therein.

An attaching device may further be provided for attaching the reference line generating device to the dart board. The attaching device includes at least one arm having a first end attached to the dart board, and a second end for supporting the reference line  
10 generating device. The arm includes an extension laterally extended from the first end of the arm, and secured to the dart board with at least one fastener.

Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description  
15 provided hereinbelow, with appropriate reference to the accompanying drawings.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a dart board assembly having a reference line generating device in accordance with the present  
20 invention;

FIG. 2 is a perspective view of the reference line generating device of the dart board assembly;

FIG. 3 is an exploded view of the reference line generating device of the dart board assembly;

25 FIG. 4 is a side schematic view of the reference line generating device of the dart board assembly; and

FIG. 5 is a side schematic view similar to FIG. 4, illustrating

the operation of the reference line generating device of the dart board assembly.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to the drawings, and initially to FIG. 1, a dart board assembly in accordance with the present invention comprises a dart board 10 including a spider 11 to separate the front portion of the dart board 10 into a number of dart areas or dart segments 12 that are to be hit by darts (not shown). The dart board 10 may include a control panel 14 to control the dart games to be played by the players, for example.

The dart board assembly further includes one or more reference line generating devices 30 to be attached to the dart board 10 with a coupling or attaching means or device 20. For example, as shown in FIGS. 2-4, the attaching device 20 includes one or more arms 21 each having an extension 22 bent or extended laterally from one end thereof, and one or more orifices 23 formed in the arms 21 or extensions 22, for receiving fasteners 24 which may secure the arms 21 to the dart board 10.

The attaching device 20 further includes one or more apertures 25 formed in the other end of the arms 21, for receiving fasteners 26 which may be used to secure the reference line generating device 30 to the arms 21. For example, the reference line generating device 30 may include a housing 31 rotatably secured to the arms 21 with the fasteners 26, to allow the housing 31 of the reference line generating device 30 to be rotated and adjusted relative to the dart board 10 to any selected angular positions, best shown in FIGS. 4, 5.

The housing 31 of the reference line generating device 30 includes a chamber 32 formed therein for receiving a circuit board 40 or the like therein, and includes a casing 33 provided or extended in front portion thereof. The casing 33 includes a bore 34 formed  
5 therein, and a passage 35 formed therein and intersecting or communicating with the bore 34 thereof for receiving a lens 36 therein.

The circuit board 40 includes a laser or light generating device 41 provided or attached thereon, and engageable into the bore 34 of  
10 the casing 33, and disposed behind the lens 36, for generating light through the lens 36, in order to generate one or more reference lines or toe lines 70 (FIG. 1) on the ground or the like. It is to be noted that the circuit board 40 and the light generating device 41 may be solidly secured to the dart board 10 at the selected angular positions  
15 by solidly securing the housing 31 to the dart board 10.

The circuit board 40 may further include a lens or a hood 42 attached thereto, and disposed or secured in front of the light generating device 41, for such as light concentrating purposes. The light generating device 41 may also be arranged to generate the  
20 reference lines or the toe lines 70 without the lens 36 nor the hood 42. In addition, the reference lines or the toe lines 70 may include a predetermined length or unlimited length.

It is further to be noted that the reference lines or the toe lines 70 may be generated by the light generating device 41 and spaced  
25 from the dart board 10 at the selected distance when the housing 31 and the circuit board 40 and the light generating device 41 are solidly secured to the dart board 10 at the selected angular position,

such that the players are not required to redraft the toe lines again and again when playing the dart games.

5 A cover 37 may be secured to the rear or back portion of the housing 31, with such as fasteners 38, in order to stably retain the circuit board 40 within the housing 31. The circuit board 40 and/or the light generating device 41 may be coupled to various electric power suppliers, such as the electric power supplier of the dart board 10, with such as electric wires 43, in order to be energized by various electric power suppliers.

10 Accordingly, the dart board assembly in accordance with the present invention includes a device for generating reference lines or toe lines and for avoiding the users or the players from drafting the reference lines or the toe lines manually.

15 Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

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